Remarks

The following remarks are responsive to the Examiner's rejection in the Non-final Office Action dated July 8, 2008.

Status of the claims

The pending claims are 1-8, and 10-13. No claim amendments are being made in this paper.

Claim Rejection -- 35 U.S.C. § 103

Claims 1-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,066,357 to Tang et al., (hereinafter "Tang") in combination with Applicants' Background section at pages 1-4 of the specification. Applicants respectfully traverse this rejection.

Tang teaches a vapor phase process using a thermal driving force to push dopant into a host material (see generally col. 13, Parts List, items 610 (donor support), 680 (heat radiation), and 910 (fluid vapor) and claims 9, 19 and 44. The presently claimed invention uses a liquid phase, not a vapor phase, and requires no thermal gradient to drive dopant into the host material. In addition, Tang requires added complexity with the requirement of a vapor device illustrated in Fig. 11A and 11B. A vapor phase process requiring additional equipment, as presented by Tang, does not render obvious the claimed liquid phase process of the presently claimed invention.

Tang teaches that the addition of a fluorescent material into a light-emitting host material can modify the host light transmission and improve operational stability of the light-emitting device, col. 1, line 67 through col. 2, line 7. An organic light-emitting layer, exhibiting a blue emission spectrum, is deposited over a hole transport layer, while a dopant layer is deposited upon the light-emitting layer, col. 4, lines 6-14. Red, green and blue dopants are aligned with the subpixel columns, col. 6, lines 48-65. An ink-jet printer is used to deposit precise dopant locations, col. 4, lines 36-39, while the printing fluid, and printing fluid vapors, used in the ink-jet will not penetrate the light-emitting layer, col. 10, lines 16-31, without application of a separate diffusion step. In other words, Tang teaches away from the present claims 1 and 11 wherein "...the first liquid composition solvates the contact portion of the organic layer" and would provide no motivation to one of ordinary skill in the art to solvate the organic layer. The dopant diffusion step is outlined in col. 8, line 60, through col. 9, line 4. In an alternative embodiment, radiative heat is used to vaporize a dopant donor layer and deposit the dopant on the light-emitting layer, followed by the dopant diffusion step. Both of these methods expose the dopant to an elevated temperature, possibly degrading or damaging the material forming the

dopant. The vapor treatment system is illustrated in Fig. 11A and 11B, while being described in col. 11, line 51 through col. 12, line 4.

There is no teaching or suggestion in Tang of applying a liquid composition to solvate a portion of the organic layer. Tang presents a fluid vapor treatment to thermally force dopant into the organic host layer. Vapor phase processes, such as Tang's, may expose dopants to elevated temperatures which can impair or destroy the dopant molecules susceptible to elevated temperatures. By contrast, the solvation and attendant increase in viscosity of the organic layer in the presently claimed invention restricts migration of the guest material in a lateral dimension within the organic layer. This capability to selectively apply guest material to the host material, without the use of vapor phase equipment and processing, is simply outside the capability of the vapor phase process presented in Tang.

Applicants' background section on pages 1-4 of the present specification are descriptive of non-selective ink dispersion methods. None of these processes, individually or collectively, is the same as or suggestive of Applicants' claimed subject matter. Applicants' methodology permits a selective insertion of guest material into an organic layer to provide improved performance in OLED devices.

Based on the teaching of Tang in combination with the background section of Applicants' specification, one of ordinary skill in the art would not know to convert a portion of an organic layer to a substantially liquid state in order for a guest material to migrate therein, nor would the advantages of doing so be apparent. Thus, Applicants respectfully submit that none of the claims is obvious over Tang in view of Applicants' discussion at pages 1-4.

For the reasons given above, Applicants respectfully submit that this rejection has been overcome and request that the rejection be withdrawn.

Double Patenting Rejection

Claims 1-8 and 10-13 are provisionally rejected for obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 10/889,883. Applicants will timely file a terminal disclaimer, upon receipt of a Notice of Allowance, to overcome the double patenting rejection.

Conclusion

For all of the foregoing reasons, Applicants respectfully submit that the rejections have been rendered moot or overcome by the foregoing remarks, and that the pending claims are in condition for allowance. A notice of allowance is earnestly solicited.

Should there be any questions about the content of this paper or the status of the application, the Examiner is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,

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